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PHOTOGRAPHIC INTELLIGENCE REPORT

~~FIELD ANALYSIS~~
MENSURAL ANALYSIS OF ELEVATED CRUISE MISSILE
TUBES SOVIET "J" CLASS SSG, ROSTA, USSR

Declass Review by NIMA/DOD

CIA/PIR 67242

DATE MARCH 1966

GROUP 1
Excluded from automatic
downgrading and declassification

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MENSURAL ANALYSIS OF ELEVATED CRUISE MISSILE TUBES

SOVIET "J" CLASS SSG, ROSTA, USSR

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MENSURAL ANALYSIS OF ELEVATED CRUISE MISSILE TUBES
SOVIET "J" CLASS SSG, ROSTA, USSR

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A Soviet "J" Class cruise missile submarine was photographed with her forward missile tubes elevated at the Rosta Naval Shipyard, Rosta, USSR (69-02N 033-04E), on [REDACTED]. An analysis of this photography has been performed to provide information concerning visible missile tube dimensions, elevation angle, depression distance, pivot point, and possible translation. All measurements contained in this report were derived by the Technical Intelligence Division, NPIC. Due to a lack of usable camera/target data ratio techniques only were used in the course of this study.

BASIC ASSUMPTIONS

The following data was assumed throughout the course of this analysis:

- (1) Distance in a true vertical plane between bow draft marks
[REDACTED]
- (2) Point P_2 corresponds to point P_3 when tubes are depressed (see line drawing - Figure 1).
- (3) Centerline of irregularly-shaped protrusion alongside of missile tube is aligned with the centerline of the semi-elliptical notch in submarine hull outline below tube when launchers are depressed.
- (4) No scale change is assumed in a "Z" (vertical) direction from the draft marks to the missile tube.
- (5) Scale along longitudinal axis of missile tube is assumed to be constant (within stated limits of accuracy) at all points.

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VISIBLE MISSILE TUBE DIMENSIONS

DESCRIPTION

Length of deck opening

Tube diameter



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DESCRIPTION

Depression (in feet) between
visible top after end of
tube and deckline

Elevation (in feet) between
forward top edge of tube
and deckline

Angle of elevation

Major axis of irregularly-
shaped protrusion on side
of missile tube

Distance across top of semi-
elliptical notch in sub-
marine hull outline below
missile tube

Width of band around forward
edge of tube (probably
equates to width of missile
tube cap cover)

Length of curved shielding
around upper leading edge
of missile tube

Probable geometric point (dis-
tance from after edge of
missile tube deck opening)

All dimensions not specifically mentioned should be assumed to have
tolerances

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DETERMINATION OF PROBABLE GEOMETRIC PIVOT POINT

Assuming (1) that the irregularly-shaped protrusion on the side of
the tube becomes aligned with the semi-elliptical notch in the submarine's
outer hull and (2) that line L_1 coincides with line L_2 when the tubes are

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depressed (see Figure 1), a geometric analysis reveals that the distance between the visible end of the tube and the probable geometric tube pivot point is approximately [] X_1 in the example below).

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From Figure 1 it may be seen that this dimension [] corresponds closely to the intersection of line L_1 and L_2 at point P_1 . Thus, point P_1 is the most probable pivot point using only geometric considerations. POINT P_1 MAY OR MAY NOT BE THE ACTUAL MECHANICAL PIVOT POINT.

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POSSIBLE TRANSLATION OF MISSILE TUBES

An attempt was made to determine if, in addition to the rotation of the tubes (through a vertical plane), there was any possible translation in the movement of the tubes as they were elevated or depressed. Two approaches were considered in analyzing this problem - each of which necessitated making basic assumptions with respect to the spatial relationship between the missile tube and its depressed position within the outer submarine hull. Assuming that the irregularly-shaped protrusion along the side of the tube recesses into the semi-elliptical notch in the submarine hull outline below the tube, by rotating this protrusion through 15 degrees of arc (about a pivot point at P_1) it was found that the position of the protrusion when depressed lacks approximately [] of mating with the notch []

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[] The second approach utilized the assumption that the actual length along the tube centerline (of which a length of [] is equal to the length of the deck aperture in which the tube is positioned when in a depressed condition (1 []

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Using this approach a subtraction of the visible tube length [] yields a possible translation of approximately minus [] of a foot. Therefore, an average possible translation obtained for each of []

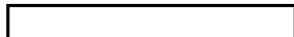
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REFERENCES



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REQUIREMENT

C-S15-83,166

CIA/IAD PROJECT

30583-6

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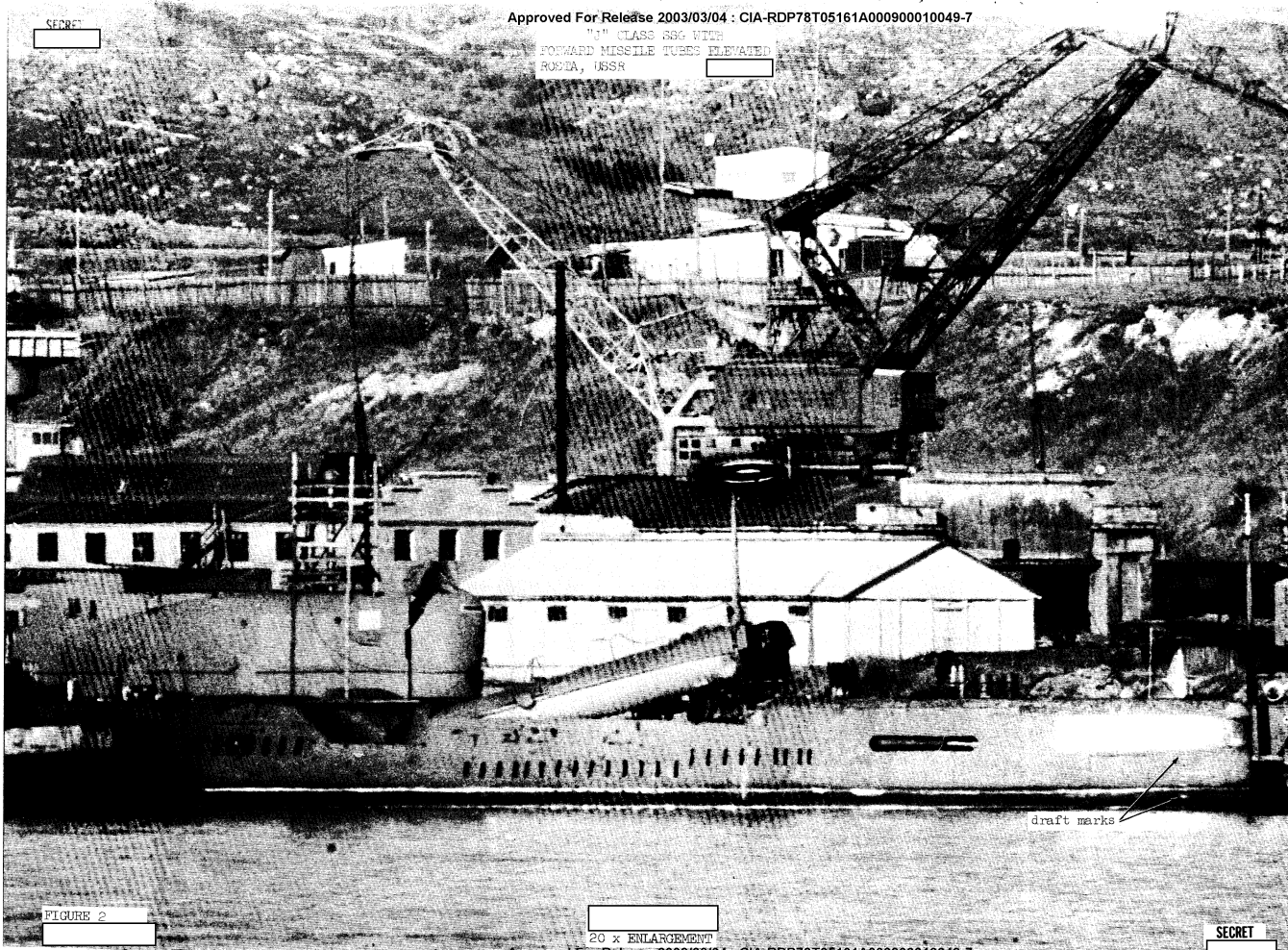
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"U" CLASS SSG WITH
FORWARD MISSILE TUBES ELEVATED
ROSTA, USSR



draft marks

FIGURE 2

20 x ENLARGEMENT

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